Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Correspondence

Pre-labor anorectal swab for SARS-CoV-2 in COVID-19 pregnant patients: is it time to think about it?

To the Editor,

the obstetric and neonatal outcomes of COVID-19 in pregnant patients are still uncertain. To date, it is unknown whether vaginal delivery increases the risk of vertical transmission, since mainly cesarean deliveries have been reported [1]. Current guidelines for pregnant women with confirmed COVID-19 suggest that delivery mode should be determined primarily by obstetric indication, and vaginal delivery should be favored in order to avoid unnecessary surgical complications [2]. However, the presence of SARS-CoV-2 in genital tract and in feces has been demonstrated [3].

Here we report the case of a 28-year-old woman (para1) at 37 weeks of gestation who was admitted to our department for active labor. The pregnancy was complicated by gestational diabetes mellitus in this otherwise healthy woman. She reported a 11-day history of mild fever (< 38 °C) and dry persistent cough. At admission, the body temperature was 36.6 °C, the blood pressure 113/69 mm Hg, the pulse 80 beats per minute, the respiratory rate 16 breaths per minute, and the oxygen saturation 98% while breathing ambient air. Laboratory tests were unremarkable. A nasopharyngeal swab taken at admission for the detection of SARS-CoV-2 tested positive. Three hours later, a female infant weighing 3120 g was delivered by vaginal route in a negative-pressure isolation room. The APGAR scores were 9 and 10 at 1 and 5 minutes, respectively. The mother wore a surgical mask throughout labor. Umbilical cord blood was collected and a placental swab performed on both the fetal and the maternal side. The newborn was asymptomatic and transferred in the neonatal care unit where a nasopharyngeal swab was taken. The sample tested positive. Additional vaginal, rectal, stool, and colostrum maternal swabs were collected after delivery and tested for SARS-CoV-2. A further RT-PCR was performed on the same neonatal nasopharyngeal swab 37 hours later and tested negative for SARS-CoV-2. RT-PCR were performed according to World Health Organization (WHO) guidelines. Umbilical cord blood was used for a rapid and simple point-of-care lateral flow immunoassay which can detect IgG and IgM antibodies simultaneously against SARS-CoV-2. Table 1 presents the test results for mother and newborn.

Although SARS-CoV-2 has been found in the stool from one out of three non-pregnant patients with COVID-19 [2], no studies to date have investigated the presence of the virus in the maternal feces of pregnant patients. Here we report the first case of potential vertical transmission during vaginal delivery in a pregnant woman with COVID-19 and rectal and stool maternal swabs positive for SARS-CoV-2. The negative result of the second analysis on the same neonatal nasopharyngeal swab can be explained by the low amount of viral RNA in the sample. Indeed, RT-PCR has limited sensitivity, particularly for low viral load [4], as that originating from fecal contamination through the vaginal canal.

Our case suggests that SARS-CoV-2 can enter the neonatal nasopharynx during vaginal delivery and potentially trigger neonatal infection, in particular when a recent onset of maternal symptoms is reported. Indeed, these newborns are at higher risk to develop severe COVID-19, because of the absence of maternal IgG in their serum, that appear fourteen days after maternal symptoms onset [5].

Table 1
Summary of the investigations performed on mother, placenta and newborn.

MOTHER				
SARS-CoV-2 RT-PCR				
Nasopharyngeal swab	*Rectal and stool swabs*	*Vaginal swab*	*Placental swab (maternal side)*	*Colostrum swab*
During labor	Post-delivery	Post-delivery	At delivery	Post-delivery
Positive	Positive	Negative	Negative	Negative
NEWBORN				
SARS-CoV-2 RT-PCR			SARS-CoV-2 antibody levels	
Nasopharyngeal swab		*Placental swab (fetal side)*	*Cord blood*	
NCU admission		At delivery	At delivery	
1st RT-PCR*	2nd RT-PCR**		IgG	IgM
Positive	Negative	Negative	Positive	Negative

NCU: neonatal care unit; RT-PCR: reverse-transcriptase–polymerase-chain-reaction.
* after sample collection **37 hours after sample collection.

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In brief, to reduce the potential risk of vertical transmission, a pre-labor anorectal swab could be taken from COVID-19-positive pregnant patients to identify newborns at risk of perinatal infection. Research is urgently needed to produce clinical guidelines for obstetricians who will face a rapid rise in pregnant carriers of SARS-CoV-2.

Declaration of Competing Interest

All authors have no conflict of interest to disclose. The Authors have no sources of funding to declare.

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Andrea Carosso[1,*]
Stefano Cosma[1]
Fulvio Borella
Luca Marozio
Obstetrics and Gynecology 1U, Department of Surgical Sciences, Sant'Anna Hospital, University of Turin, Turin, Italy

Alessandra Coscia
Neonatal Care Unit, Department of Public Health and Pediatrics, University of Turin, Turin, Italy

Valeria Ghisetti
Giovanni Di Perri
Unit of Infectious Diseases, Department of Medical Sciences, University of Turin, Turin, Italy

Chiara Benedetto
Obstetrics and Gynecology 1U, Department of Surgical Sciences, Sant' Anna Hospital, University of Turin, Turin, Italy
[1]*Dr. Carosso and Dr Cosma contributed equally to this letter.*

[*] Corresponding author at: Obstetrics and Gynecology 1U, Department of Surgical Sciences, Sant'Anna Hospital, University of Turin, Via Ventimiglia 1, 10126, Turin, Italy.
E-mail address: andrea88.carosso@gmail.com (A. Carosso).

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